IL'INA, T.B.

Streptomycin, phthivazid and their combination in the treatment of experimental osteoarticular tuberculosis induced in rabbits by Mycobacterium tuberculosis sensitive and resistant to streptomycin. Sov.med. 23 no.7:113-117 Jl '59. (MIRA 12:11)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta khirurgicheskogo tuberkuleza (dir. - deystvitel'nyy chlen AMN SSSR prof.P.G.Kornev).
(TUBERCULOSIS, OSTEOARTICULAR experimental)
(STREPTOMYCIN pharmacology)
(ISONIAZID related cpds.)

IL'INA, T.B., mladshiy nauchnyy sotrudnik

Streptomycin-resistance in Mycobacterium tuberculosis in bone tuberculosis. Probl.tub. 37 no.5:88-94 '59. (MIRA 12:10)

1. Iz Leningradskogo instituta khirurgicheskogo tuberkuleza (dir. - deystvitel'nyy chlen AMN SSSR prof.P.G.Kornev).
(STREPTOMYCIN - pharmacology)
(MYCOBACTERIUM TUBERCULOSIS - pharmacology)
(TUBERCULOSIS, STEOARTICULAR)

IL'INA, T.B.

BCG and streptomycin therapy in rabbits of osteoarticular tuberculosis caused by Mycobacterium tuberculosis resistant and sensitivity to streptomycin. Probl.tub. 39 no.3:64-68 '61. (MIRA 14:5)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta khirurgicheskogo tuberculeza (dir. - prof. D.K. Khokhlov, nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR prof. P.G. Kornev).
(BCG VACCINATION) (BONES--TUBERCULOSIS)
(STREPTOMYCIN)

KUCHERYAVYY, F.Kh.; IL'INA, T.B.(Leningrad)

Nonspecific phagocyte activity in experimental bone tuberculosis following the use of pyrogens and streptomycin. Pat.fiziol. i eksp. terap. 7 no.2:63-67 Mr-Ap'63. (MIRA 16:10)

1. Iz laboratorii eksperimental'noy patologii i terapii (rukovoditel' - kand.med.nauk F.Kh.Kucheryavyy) Leningradskogo instituta khirurgicheskogo tuberkuleza.
(BONES--TUBERCULOSIS) (PHAGOCYTOSIS)
(PYROGENS) (STREPTOMYCIN)

IL'INA, T.D.

Change in the mechanisms of drawing-off of the fabric and feed of the thread on automatic circular hosiery knitting machines. Obm.tekh.opyt. [MLP] no.36:10-11 '56. (MIRA 11:11)
(Knitting machines)

IL'INA, T.D.

Automatic correlation of logging diagrams with respect to depth. Neftegaz. geol. i geofiz. no.7:44-43 '63. (MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki.

IL'INA, T.D.

Use of digital computers in field geophysics. Neftegaz. geol. i geofiz. no.10:50-54 '63. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki.

IL'INA, T.D.; KULINKOVICH, A.Ye.; PER'KOV, N.A.; SOKHRANOV, N.N.

Present status of and prospects for the development of the interpretation of geophysical data on boreholes using computers. Sov. geol. 6 no.5:121-125 My '63. (MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki.
(Logging(Geology)—Electronic equipment)
(Electronic computers)

IL'INA, T.G.

Blind spot in brucellosis. Vest.oft. 30 no.1:10-11 Jan-Feb 51.(CIML 20:6)

1. Assistant. 2. Of the Eye Clinic (Director -- Honored Worker in Science Uzbek SSR Prof. P.F. Arkhangel'skiy), Tashkent Medical Institute imeni V.M. Molotov.

IL'INA, T. G.

"Morphology of the Blind Spot in Brucellosis Patients." Cand Med Sci, Tashkent State Medical Inst imeni V. M. Molotov, Tashkent, 1955. (KL, No 17, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

IL'INA, T.G.

Some members of the family Pterophyllidae from the Permian-Triassic boundary beds of Dzhul'fa. Paleont.zhur. no.4:70-82 '62. (MIRA 16:1)

1. Paleontologicheskiy institut AN SSSR.
(Dzhul'fa region--Pterophyllidae)

IL'INA, T.G.

Similarity and dissimilarity of coral fauna in the upper Permian and lower Triassic of Dzhul'fa. Biul.MOIP Otd.geol. 37 no.1:155-156 Ja-F '62. (MIRA 15:2)

(Corals, Fossil)

IL'INA, T.G.

Recent data on the origin of hexacorals. Dokl. AN SSSR 148 no.1: 194-196 Ja '63. (MIRA 16:2)

1. Predstavleno akademikom Iu.A. Orlovym.
(Corals, Fossil)

IL'INA, Tamara Gennadiyevna; SARYCHEVA, T.G., otv. red.

[Late Permian and Early Triassic tetraradiate corals in Transcaucasia] Chetyrekhluchevye korally pozdnei permi i rannego triasa Zakavkaz'ia. Moskva, Nauka, 1965. 103 p. illus. (Akademiia nauk SSSR. Paleontologicheskii institut. Trudy, no.107). (MIRA 18:7)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000618510012-7"

FEDOROV, M.V.; IL'INA, T.K.

Stimulating effect of yeast autolysate on nitrogen-fixing activity of soil actinomycetes. Mikrobiologiia 28 no.4:541-547 Jl-Ag '59. (MIRA 12:12)

1. Moskovskaya sel'skokhozyaystvennaya akademiya im. K.A. Timiryazeva i Institut mikrobiologii AN SSSR.
(ACTINOMYCES metab.)
(YEASTS)

FEDOROV, M.V.; IL'INA, T.K.

Relation of individual forms of soil actinomycetes grown on nitrate and molecular nitrogen to various carbon sources. Mikrobiologiia 29 no. 4:495-500 Jl-Ag '60. (MIRA 13:10)

1. Moskovskaya ordena Lenina sel'skokhozyaystvennaya akademiya imeni K.A. Timiryazeva i Institut mikrobiologii AN SSSR.
(ACTINOMYCES) (NITROGEN—FIXATION)

FEDOROV, M.V., prof., doktor biolog.nauk; IL'INA, T.K., kand.biolog.nauk

Availability of the carbon and nitrogen of humic acids to certain soil actinomyces. Izv. TSKhA no.1:42-48 '61. (MIRA 14:3)

1. Moskovskaya ordena Lenina sel'skokhozyaystvennaya akademiya im. K.A. Timiryazeva (for Fedorov). 2. Institut mikrobiologii Akademii nauk SSSR (for Il'ina).
(ACTINOMYCES) (HUMIC ACID)

IL'INA, T.K., kand. biol. nauk

Biological azote fixation in agriculture. Vest. AN SSSR 32 no.6: 113-115 Je '62. (MIRA 15:6)
(Nitrogen—Fixation)

FEDOROV, M.V.; IL'INA, T.K.

Utilization of humic acid by soil actinomycetes as the sole source of carbon and nitrogen. Mikrobiologiia 32 no.2:272-276 Mr-Ap '63. (MIRA 17:9)

1. Moskovskaya sel'skokhozyaystvennaya akademiya imeni K.A. Timiryazeva i Institut mikrobiologii AN SSSR.

IVANOV, I.D.; IL'INA, I.K.; SITONITE, Yu.P.

Current views on the mechanism of biological fixation of molecular nitrogen. Mikrobiologiia 33 no.3:540-547 My-Je '64.
(MIRA 18:12)

1. Institut mikrobiologii AN SSSR, Moskva. Submitted January 27, 1964.

ILYINA, T. P.

Bv. abs.

All 6 Metallurgy

IL'INA, T.S.

Antigenic properties of influenza B virus isolated in 1950. Vop. virus. 1 no.1:39-41 Ja-F '56. (MLRA 10:1)

1. Tashkentskiy nauchno-issled. institut vaktsin i syvorotok, Tashkent.

(INFLUENZA VIRUSES, immunology,
B, antigenic properties of (Rus))
(ANTIGENS AND ANTIBODIES,
influenza virus B antigenic properties (Rus))

IL'INA, T. S.: Master Biol Sci (diss) -- "The biological properties of strains of the grippe virus isolated in Tashkent". Tashkent, 1958. 14 pp (Tashkent State Med Inst, Tashkent Sci Res Inst of Vaccines and Sera of the Min Health USSR), 260 copies (KL, No 8, 1959, 135)

IL'DIA, T.S.

A, A1, and B, isolated in Tashkent. Vop.virus. 3 no.1:44-45 Ja-F '58. (MIRA 11:4)

1. Tashkentskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok.
(INFLUENZA VIRUSES,
biol. properties of various strains, comparison (Rus)

MAYOROVA, E.A.; SHILOVA, Ye.A.; SHILKIN, O.D.; IL'INA T.S.

Molding gear wheels of caprolan. Stan. i instr. 35 no.6: 23-25 Je '64 (MIRA 17:8)

CHERNOVA, V.P.; IL'INA, T.S.

Some clinical and laboratory parallels in influenza during the winter outbreak in 1959. Sbor.nauch.trud.TashGMI 22:109-115 '62. (MIRA 18:10)

1. Kafedra infektsionnykh bolezney (zav. kafedroy - prof. T.Kh. Nadzhmiddinov) Tashkentskogo gosudarstvennogo meditsinskogo instituta i Institut vaktsin i syvorotok (direktor - kand.biol. nauk A.B.Inogamov).

IL'INA, T.S.; ZHDANOV, V.G.

Use of actinophage for the production of a phage-resistant strain of erythromycin producer. Mikrobiologiia 33 no.3:516-521 My-Je '64. (MIRA 18:12)

1. Institut atomnoy energii imeni I.V.Kurchatova AN SSSR.
Submitted April 21, 1963.

ILINA, T.S.

USSR/Chemistry - Analytical chemistry

Card 1/1 Pub. 116 - 18/25

Authors : Kul'berg, L. M., and Ilyna, T. S.

Title : New fluorescent reaction for the discovery of hydrazine

Periodical : Ukr. khim. zhur. 21/1, 97-98, 1955

Abstract : The formation of o-hydroxybenzakdazine, which fluoresces with a yellow-orange color, was used as the bases for the development of a new fluorescence reaction method best suitable for discover of hydrazine. The new reaction made it possible to discover $5 \cdot 10^{-10}$ g of hydrazine during maximum dilution of $1 : 10^{6}$. The reaction was found as being highly specific and capable of detecting hydrazine in the presence of nitrites, nitrates, azides, hydroxylamine, ammonium salts and strong reducing agents. Five References: 4 USSR and 1 USA (1937-1951). Table.

Institution : The N.G.Chernishevskiy State University, Faculty of Analytical Chem., Saratov

Submitted : December 1, 1953

ALIKHANYAN, S.I., IL'INA, T.S.

Mutagenic effect of actinophages [with summary in English].
Zhur.obs.biol. 19 no.5:348-356 S-O '58 (MIRA 11:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(BACTERIOPHAGE)
(ACTINOMYCES)
(VARIATION (BIOLOGY))

AUTHORS: Alikhanyan, S. I., Il'ina, T. S. SOV/20-120-5-53/67

TITLE: The Mutagenic Effect of Actinophage (Mutagennoye deystviye aktinofaga)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 5, pp. 1122 - 1125 (USSR)

ABSTRACT: In 1952 Zinder and Lederberg (Tsinder and Lederberg, Ref 6) for the first time observed the phenomenon of transduction in Salmonella. It is based on the capability of phage to transfer in some cases the individual properties of those bacteria on which the reproduction of the phage has hitherto taken place. Several authors have proved that on the occasion of the infection with phage only desoxyribonucleic acid enters the bacteria cell while the protein contained in the phage remains outside. In this connection the authors wanted to investigate the changeability of Actinomycetes under the influence of actinophage. A survey of publications on already known evidence is given (Refs 1-4). On table 2 data are given on the spontaneous frequency of mutations in the race H-6 of Actinomyces olivaceus after a joint

Card 1/3

breeding with actinophage Nr 2671 and 8238. As can be seen from it the frequency of mutations attains 97,2% under the influence of the former, these mutants, however, are of another type than those formed under the action of phage Nr 1 and 2 (Tables 1 and 2). The mutations formed under the influence of actinophage Nr 8238 show a deviating frequency and deviating morphologic characteristics. Thus, it can be seen that the action of all three actinophages on the race H-6 is deeply specific. It can be assumed that the phenomenon described above is based on a certain similarity with the transduction in bacteria. In the experiments described here no distinctive transfer of the culture of the host on which the phage multiplied took place. However, certain morphologic variabilities of different type were obtained under the influence of variants of the same phage (Nr 1) which was bred on different cultures of Actinomycetes. These changes were not caused by a damaging action of the actinophage. Some groups of the changed colonies reproduced the mutants which form under the influence of ultraviolet rays. It is possible that, if actinophage is bred on a certain culture of Actinomycetes it may become the carrier of a certain genetic information. The latter

The Mutagenic Effect of Actinophage

SOV/20-120-5-53/67

is then transferred to the culture of Actinomycetes infected by these phages. There are 3 tables and 6 references, 2 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov (All-Union Scientific Research Institute of Antibiotics)

PRESENTED: March 1, 1958, by V.A. Engel'gardt, Member, Academy of Sciences, USSR

SUBMITTED: February 24, 1958

1. Bacteriophages--Properties 2. Bacteriophages--Genetic effects
3. Bacteria--Genetic factors 4. Actinomycetales--Mutations

Card 3/3

IL'INA, T. S. Cand Biol Sci -- (diss) "On the peculiarities of actinophage-induced variability in actinomyces." Mos, 1959. 15 pp (Acad Sci USSR. Inst of Microbiology), 150 copies (KL, 50-59, 125)

IL'INA, T.S.; ALIKHANYAN, S.I.

Use of actinophates in the selection of actinomycetes. Antibiotiki 4 no.5:20-23 S-O '59. (MIRA 13:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(ACTINOMYCES)
(BACTERIOPHAGE)

ALIKHANYAN, S.I.; IL'INA, T.S.

The transducing and mutagenic action of actinophages on actinomycetes. Zhur.ob.biol. 20 no.4:269-275 Jl-Ag '59. (MIRA 12:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

(ACTINOMYCES)
(BACTERIOPHAGE)
(VARIATION (BIOLOGY))

IL'INA, T.S.; TETERYATNIK, A.F.; FEDOROVA, I.V.; RETINSKAYA, V.I.

Use of actinophages in the selection of actinomycetes. Trudy Inst. mikrobiol. no.10:182-186 '61. (MIRA 14:7)
(ACTINOMYCES) (BACTERIOPHAGE)

IL'INA, T.S.; MEVZOS, L.M.; FINOGENOVA, Ye.V.

Study of the state of anti-influenzal immunity among the population of the city of Tashkent from 1958 to 1960. Med. zhur. Uzb. no.2:11-17 F '62. (MIRA 15:4)

1. Iz Tashkentskogo nauchno-issledovatel'skogo instituta vaktsin i syvorotok Ministerstva zdravookhraneniya SSSR (direktor - kand. biologicheskikh nauk A.B.Inogamov).
(IMMUNITY) (TASHKENT--INFLUENZA)

IL'INA, T.S.

Study of the antigenic structure of the influenza virus by the adsorption method. Trudy Tash. NIIVS 5:3-5 '62. (MIRA 16:10)

(INFLUENZA VIRUSES) (ANTIGENS AND ANTIBODIES)

CHERNOVA, V.P.; IL'INA, T.S.

Some clinical and laboratory parallels in influenza during the winter outbreak in 1959. Sbor.nauch.trud.TashGMI 22:109-115 '62. (MIRA 18:10)

1. Kafedra infektsionnykh bolezney (zav. kafedroy - prof. T.Kh. Nadzhmiddinov) Tashkentskogo gosudarstvennogo meditsinskogo instituta i Institut vaktsin i syvorotok (direktor - kand. biol.nauk A.B.Inogamov).

MIKHAYLOVA, G.R.; KRASNOPOL'SKAYA, K.D.; IL'INA, T.S.

Cytological examination of Actinomyces olivaceus cells infected with actinophage. Mikrobiologiia 32 no.2:245-251 Mr-Ap '63. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.

YEROKHINA, L.I.; IL'INA, T.S.; KAMENEVA, S.V.; KRYLOV, V.N.; LOMOVSKAYA, N.D.; MINDLIN, S.Z.; NIKIFOROV, V.N.; SOKOLOVA, Ye.V.; SUKHODOLETS, I.V.; ZAKHAROV, I.A.; INGE-VECHTOMOV, S.G.; KVITKO, K.V.; KRIVISSKIY, A.S.; KARASEVICH, Yu.N.; ENGEL'GARDT, V.A., akademik, glav. red.; ALIKHANYAN, S.I., prof., red.; IL'INA, T.S., red.

[Genetics and variation of micro-organisms] Genetika i selektsiia mikro-organizmov. Moskva, Nauka, 1964. 304 p. (MIRA 17:9)

1. Institut atomnoy energii imeni I.V.Kurchatova (for Yerokhina, Il'ina, Kameneva, Krylov, Lomovskaya, Mindlin, Nikiforov, Sokolova, Sukhodolets). 2. Kafedra genetiki Leningradskogo gosudarstvennogo universiteta (for Zakharov, Inge-Vechtomov, Kvitko). 3. Institut radiatsionnoy i fiziko-khimicheskoy biologii (for Krivisskiy). 4. Institut mikrobiologii AN SSSR (for Karasevich).

IOMOVSKAYA, N.D.; ILYINA, T.S.

Transduction of streptomycin resistance in relation to study of the state of heterogeneity in actinomycetes. Mikrobiologiia 33 no.4:593-597 Jl-Ag '64. (MIRA 18:3)

1. Institut atomnoy energii imeni Kurchatova.

SUKHODOLETS, V.V.; IL'INA, T.S.; ALIKHANYAN, S.I.

Genetic mapping of thymine-dependent mutants of Escherichia coli K-12. Genetika no.1:78-88 '65. (MIRA 18:10)

1. Institut atomnoy energii im. I.V.Kurchatova AN SSSR, Moskva.

ALIKHANIAN, S.I.; IL'INA, T.S.; KALYAYEVA, E.S.; KAMENEVA, S.V.; SUKHODOLETS, V.V.

Characteristics of Escherichia coli K 12 mutants with impaired tymidylic acid synthesizing system. Mikrobiologiia 34 no.4:666-675 Jl-Ag '65. (MIRA 18:10)

1. Institut atomnoy energii imeni I.V.Kurchatova.

IL'INA, T.S.; ALIKHANYAN, S.I.

Burst of phage of P1 kc from Escherichia coli K-12 mutants with disturbed system of thymidylic acid synthesis. Genetika no.3:105-110 S '65. (MIRA 18:12)

1. Institut atomnoy energii imeni I.V.Kurchatova, Moskva. Submitted May 6, 1965.

IL'INA, T.S.; KALYAYEVA, E.S.; KAMENEVA, S.V.

Effect of thy and tlr mutations on the thymine incorporation in Escherichia coli K-12 cells. Genetika no.3:119-126 S '65. (MIRA 18:12)

1. Institut atomnoy energii imeni I.V.Kurchatova, Moskva. Submitted July 26, 1965.

KAIMYKOV, B.N.; CHERNOVA, V.P.; [illegible]TNA, T.S.; KISELEVA, I.V.

Pneumonia in patients with influenza during the winter outbreak in 1959. Zbor.nauch.trud.Tash.MI 22:116-124 '62.

(MIRA 18:10)

1. Kafedra infektsionnykh bolezney (zav. kafedroy T.Kh. Nadzhuidinov) Tashkentskogo gosudarstvennogo meditsinskogo instituta, i Institut vakcin i syvorotok (direktor - kand. biolog. nauk A.B. [illegible]ogumov).

IL'INA, T.Ya.

Use and results of extrapeural pneumothorax in the province dispensary. Probl. tub. 34 no.6 supplement:22-23 N-D '56. (MLRA 10:2)

1. Iz Alma-Atinskogo oblastnogo protivotuberkuleznogo dispansera.
(PNEUMOTHORAX, ARTIFICIAL,
hosp. report (Rus))

IL'INA, T. Ya., Cand Med Sci — (diss) "Tuberculosis and pregnancy," Stalinabad, 1960, 16 pp (Stalinabad State Medical Institute im Abuali ibin Sino)

(KL, 40-60, 123)

IL'INA, T.Ya.

Some data on the development and condition of healthy children of tuberculous mothers. Zdrav. Kazakh. 21 no. 3:32-35 '61. (MIRA 14:4)

1. Iz kafedry tuberkuleza (zav. - professor V.I Zyuzin) Kazakhskogo meditsinskogo instituta.
(TUBERCULOSIS) (CHILDREN—DISEASES)

IL'INA, T.Ya.

Dynamics of the tuberculous process in patients in the third group of the dispensary classification. Zdrav. kazakh. 22 no.1: 26-29 '62. (MIRA 15:3)

1. Iz kafedry tuberkuleza (zav. - professor V.I. Zyusin) Kazakhskogo meditsinskogo instituta.
(TUBERCULOSIS--STATISTICS)

IL'INA, T.Ya.

Course of pregnancy and labor in patients with pulmonary tuberculosis. Zdrav. Kazakh. 22 no.10:30-34 '62. (MIRA 17:5)

1. Iz kafedry tuberkuleza (zav.-prof. V.I. Zyumin) Kazakhskogo meditsinskogo instituta.

IL INA, V. A.

KLIONSKII, E. E., IL'INA, V. A.

Tissue therapy in pulmonary and laryngeal tuberculosis. Probl. tuberk., Moskva No. 3, May-June 50. p. 57-9

1. Of the Tuberculosis Division of the Railroad Center Hospital imeni Dzerzhinskiy (Head of Division--V. A. Il'in) and of the Leningrad Sanitary-Hygienic Medical Institute (Consultant--Prof. Ye. Ye. Klionskiy).

CLML 19, 5, Nov., 1950.

Temperature Effects

"Change in the Solid-Solution Range Under Hydrostatic Pressure in the Al-Mg and Al-Ag Systems. M. I. Zakharova and V. A. Il'ina (*Mem. Fiz. Khim.*, 1950, 26, (9), 716-717).—[In Russian]. Al-rich Al-Mg alloys were prepared from electrolytic Al (contg. 0·040% impurities) and electrolytic Mg, by casting and annealing first at 480° C. and then at temp. of 600°, 525°, 475°, 450°, 400°, 350°, 300°, and 250° C. until equilibrium was attained. The alloys were then annealed at the same temp. under pressures up to 100 kg./mm.², applied by a Brinell press, and water-quenched under pressure. The solid solubility of Mg in Al was determined at each temp. by lattice-parameter measurements, supplemented by micrographic examination. Annealing times varied from ½ hr. at 600° C. to 34 hr. at 250° C., and in all cases further annealing led to no change in parameter. The solid solubility decreased considerably under pressure, both by comparison with Hansen and Gayler's diagram (*J. Inst. Metals*, 1936, 58, 311) and by comparison with the same alloys annealed at the same temp. under atmospheric pressure. The extent of lowering of solid solubility decreased with temp., from 5% at 450° C. to 0·8% at 250° C., both under a pressure of 100 kg./mm.². The solid solubility at 400° C. was lowered from 12·4 to 7·5%, by a pressure of 100 kg./mm.², but the change was not proportional to pressure. A similar investigation of the solid solubility of Al in Mg under pressure showed a considerable lowering: at 420° C. under 100 kg./mm.², the solid solubility was found to be 9·4%, compared with Schmid and Siebel's value (*Z. Physik*, 1933, 83, 26; *M.A.*, 1, 497) of 12·8%, at atmospheric pressure. Similar results were obtained for the solid solubility of Ag in Al, which has the following values under a pressure of 100 kg./mm.²: at 550° C., 20·6%; at 500° C., 14·5%; at 450° C., 9·6%; at 400° C., 5·1%; at 350° C., 2·0%; at 300° C., 1·5%. The corresponding values at atmospheric pressure range from 40% at 550° C. to 3·20% at 300° C. (I. H. H.

IL'INA, V.A.; KRITSKAYA, V.K., kand. fiz.-mat. nauk; KURDYUMOV, G.V.

Distorted lattices in deformed metals and solid solutions. Probl. metalloved. i fiz. met. no.2:222-231 '51. (MIRA 11:4)

1. Chlen-korrespondent AN SSSR (for Kurdyumov).
(Crystal lattices) (Deformations (Mechanics))

USSR/Metallurgy - Steel, 1 Aug 52
X-Ray Analysis

PA 227T32

"Causes for Decrease in the Intensity of Martensite X-Ray Interferences," V.A. Il'ina, V.K. Kritskaya, G.V. Kurdyumov, Corr Mem, Acad Sci USSR, Inst of Metallography and Metal Phys of TsNIIChM

"Dok Ak Nauk SSSR" Vol 85, No 4, pp 773-775

Studies character of distortions of martensite crystal lattice by measuring intensities of X-ray diffraction of hardened steel with 0.35 and 0.41% C at 2 temps: +23° and -185°.

227T32

Establishes that martensite lattice is characterized by considerable stresses of 3rd kind, i.e., considerable displacement of oscillation centers of atoms. Presence of C in soln causes considerable increase in amplitude of thermal oscillations and leads to weakening of interatomic bond in comparison to lattice of alpha-iron.

Evaluation B-82533, 2 Feb 53

227T32

IL'INA, V. A.

USSR/Metallurgy - Steel, X-Ray Analysis Aug 52

"Anisotropy in Distortions of Martensite Crystal Lattice," V. A. Il'ina, V. K. Kristskaya, and G. V. Kurdyumov, Corr Mem, Acad Sci USSR, Inst of Metallography and Metal Physics of TsNIIChM

"DAN SSSR" Vol 85, No 5, pp 997-999

Investigates decrease in intensity of spectrum lines for martensite in high-carbon steel, with 1.3% C, hardened from 1,150°C. Intensities of x-ray reflections were detd at temps of +22° and -185°. Establishes that weakening of lines

239T67

011, 002, and 112 is caused by distortions having character of static shifts of atoms from nodes of lattice in direction of [001]. Anisotropy of heat variations shows no noticeable effect.

239T67

Il'ina, V. A.

ILIINA, V. A.

USSR/Metallurgy - X-Ray Analysis, Iron 11 Nov 52

"Investigation of Changes in the Intensity of X-Ray Interferences of Deformed Iron," V. A. Il'ina, V. K. Kritskaya, Inst of Metallography and Physics of Metals, TsNIIChM

"Dok Ak Nauk SSSR" Vol 87, No 2, pp 207-210

Discusses results of measuring intensities of X-ray interferences of deformed and undeformed iron in Mo-emission at room temp, concluding that there is reduction in intensity of deformed iron in comparison with intensity of undistorted metal. This conclusion

245T22

is contradictory to data published by B. L. Averbach (J. of Metals, No 8, p 491, 1949), whose findings are disputed by authors. Submitted by Acad I. P. Bardin 12 Sep 52.

245T22

PA 245T22

ILINA, V.A.

Category : USSR/Solid State Physics - Structural crystallography E-3

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1073

Author : Kurdyumov, G.V., Il'ina, V.A., Kritskaya, V.K., Lysak, S.I.

Title : X-ray Diffraction Investigation of the Strains and Binding Forces in the Crystal Lattice of Metals and Alloys

Orig Pub : Probl. metalloved. i fiz. metallov, sb. 4, 1955, 339-359

Abstract : Extensive experimental material is reported on the study of x-ray diffraction of strains and interatomic-interaction forces in the crystal lattice of metals and alloys. The characteristic features of the live crystalline structure of metals and alloys in strengthened state are examined. An analysis is made of metals for determining the various changes in the fine crystalline structure and of the properties of the crystals in the micro regions. Bibliography, 28 titles.

Card : 1/1

IL'INA, V.A.; KRITSKAYA, V.K., kand.fiz.-mat.nauk

Investigating the regularity of intensity changes of X-ray interference in deformed iron. Probl. metalloved. i fiz. met. no.4:425-431 '55. (MIRA 11:4)

(Iron--Metallography)
(X rays--Industrial applications)

IL'INA, V.A.

USSR/ Physics - Metallurgy

Card 1/1 Pub. 22 - 18/50

Authors : Il'ina, V.A., and Kritskaya, V. K.

Title : Coupling forces and static distortions in the crystals of alloyed ferrites

Periodical : DOK. AN SSSR 100/1, 69-72, Jan. 1, 1955

Abstract : Experiments were conducted to determine the effect of alloying elements on the coupling forces of alloyed ferrite crystals (lattices). The method of measuring the thermal factor of the intensity of X-ray interferences was used. The results are presented in graphs and tables. Eight USSR references (1952-1954). Tables; graphs.

Institution: Institute of Metallography and Physics of Metals of the TsNIICHM (Central Scientific Research Institute of Ferrous Metals.)

Presented by: Academician G. V. Kurdyumov, July 26, 1954

[illegible]

IL'INA, V.A.

126-3-5/34

AUTHORS: Il'ina, V.A., Kritskaya, V.K. Kurdyumov, G.V., Osip'yan, YuA. and Stelletskaya, T. I.

TITLE: Study of the dependence of the bond forces on the state of crystals in metals and solid solutions. (Izucheniye zavisimosti sil svyazi ot sostoyaniya kristallov v metallakh i tverdykh rastvorakh).

PERIODICAL: "Fizika Metallov i Metallovedeniye" (Physics of Metals and Metallurgy), 1957, Vol.IV, No.3, pp.417-431 (U.S.S.R.)

ABSTRACT: Numerous studies revealed that the interatomic bond forces in a metallic crystal lattice can be influenced by alloying. Depending on the nature of the alloying element, the bond forces can be increased or decreased. Earlier work of the authors (3) and of Iveronova, V.I. and Katsnel'son, A.A. (4) have shown that the concentration of the alloying component is also of great importance, the heat treatment and plastic deformation was also found to influence the characteristic temperature of the solid solution (2,3,5,6). In recent years a considerable amount of work has been published inside and outside the Soviet Union in which anomalies are reported in the changes of certain properties as a result of heat treatment and deformation of numerous solid solutions. On the basis of experimental data of various authors it can

Card 1/5

Il'ina, V. A.

126-2-35/35

AUTHORS: Il'ina, V. A., Kritskaya, V. K., and Kurdyumov, G. V.

TITLE: On the change of the absolute intensities of X-ray interferences of cold deformed iron. (Ob izmenenii absolyutnykh intensivnostey rentgenovskikh interferentsiy kholodnodeformirovannogo zheleza).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.2, pp. 379-381 (USSR)

ABSTRACT: In X-ray investigations of deformed metals and alloys (Refs.1-7, 10) it was found that there is a weakening in the intensity of the lines of radiograms obtained from deformed specimens as compared to the intensity of the same lines obtained from non-deformed specimens; the degree of weakening is the more pronounced the higher the order of reflection and complies with the law $e^{-B\Sigma h_i^2}$. The work described in this paper aimed at verifying the correctness of this law and was carried out by means of an ionization method using УРС-50И equipment which incorporated additional equipment for controlling the change in the intensity of the primary beam of X-rays (I_o). The investigations were carried out on deformed

Card 1/2

126-2-33/35

On the change of the absolute intensities of X-ray interferences of cold deformed iron.

(filed off) and annealed iron powders. The obtained results are entered in a table, p.380 and a graph, Fig.1. Using the ionization method of measuring the absolute intensities, it was again proved that cold plastic deformation brings about a weakening of the intensity of the reflection of the X-rays in accordance with the expontential law

$$e^{-b\sum h_i^2}.$$

There are 1 figure, 1 table and 10 references, 4 of which are Slavic.

SUBMITTED: September 6, 1957.

ASSOCIATION: Institute of Metal Technology and Physics of Metals, TsNIIChM. (Institut Metallovedeniya i Fiziki Metallov TsNIIChM).

AVAILABLE: Library of Congress.

Card 2/2

126-2-34/35

On the weakening of X-ray reflections of α-iron as a result of extinction.

extinction takes place, the following experiments were made: deformed iron powder was annealed at 500, 650, 700 and 750°C. These powders were used for producing cylindrical specimens of 0.9 mm dia. The X-ray investigation was effected using molybdenum radiation. The X-ray patterns were photometrically evaluated by means of a recording micro-photometer which recorded the curve of intensity distribution on a self-recording electron potentiometer. Each half of the radiograph was photometered twice. The intensity was determined of X-ray interferences from crystallographic planes with the following sums of the square values of the indices: 6, 14, 26, 62. Obtained experimental data are entered in Table 1. After annealing at 500 and 700°C the relative intensity of all the measured interference values did not change; only after annealing at 750°C was a weakening observed of the intensity of the X-ray reflections from the planes (211) and (321). The intensity of the same X-ray interference from the planes (510) and (732) remained practically unchanged. In Fig.1

Card 2/3

GOLUBKOV, V.M.; IL'INA, V.A.; KRITSKAYA, V.K.; KURDYUMOV, G.V.; PERKAS, M.D.

Studying physical factors determining the hardening of alloyed iron. Fiz. met. i metalloved. 5 no. 3:465-483 '57. (MIRA 11:7)

1. Institut metallovedeniya i fiziki metallov TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii.
(Iron alloys--Hardening)
(Deformations(Mechanics))

SOV/137-58-8-17729

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 219 (USSR)

AUTHORS: Golubkov, V. M., Il'ina, V. A., Kritskaya, V. K., Kurdyumov, G. V. Perkas, M. D.

TITLE: A Study of Physical Factors Determining the Hardening of Alloyed Fe (Izucheniye fizicheskikh faktorov, opredelyayushchikh uprochneniye legirovannogo zheleza)

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii, 1958, Vol 5, pp 433-461

ABSTRACT: The dimensions of regions of coherent dispersion, D, and the magnitude of distortions of type 2, $\Delta a/a$, in pure Fe and in its α-solid solutions with Ni, Mn, Cr, Mo, V, Co, W, Ti, Nb, and Si were calculated by the width of the reflexes (110) and (220) obtained in FeK_α -irradiation and recorded on a URS-50I X-ray spectrometer; the specimens employed were cold-rolled with an 80% reduction and were also cut into pieces and subjected to quenching. In addition, static distortions, $\sqrt{\overline{u_{st}^2}}$, and the characteristic temperature, θ, were determined for the same annealed and deformed specimens by the changes in the intensity of spectra photographed under Mo

Card 1/2

SOV/137-58-8-17729

A Study of Physical Factors Determining the Hardening of Alloyed Fe

irradiation at -183°C and at room temperature. Micromechanical tests were conducted concurrently on a model RF-2 machine, and tensile stress-strain diagrams were plotted. Tables with values of D, $\Delta a/a$, $\sqrt{\overline{u}^2_{st}}$, 0, σ_s, σ_b, and Hv are given. It is shown that the magnitudes of D (2.4×10^{-6} cm), $\sqrt{\overline{u}^2_{st}}$ ($\cong$ 0.120 angstrom), and 0 were fairly close to common values for almost all alloys that had been deformed. The authors comment on the fluctuations of the $\Delta a/a$ value, which varies from $0.5 - 2.5 \times 10^{-3}$ for different alloys and emphasize the correspondence which exists between its magnitude and the tensile-strength characteristics of the deformed alloys. The difference in magnitudes of 0 and $\sqrt{u^2_{st}}$ of alloys in the annealed state is also pointed out. The mechanism of deformation and the effect of the factors indicated above on hardening of alloyed Fe are discussed. Bibliography: 37 references.

1. Iron alloys—Physical properties
2. Iron alloys—Hardening
3. Mathematics

A. B.

Card 2/2

SOV/137-59-1-948

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 129 (USSR)

AUTHORS: Il'ina, V. A., Kritskaya, V. K., Kurdyumov, G. V., Osip'yan, Yu. A., Stelletskaya, T. I.

TITLE: Study of the Dependence of the Bonding Forces on the State of Crystals of Metals and Solid Solutions (Izucheniye zavisimosti sil svyazi ot sostoyaniya kristallov metallov i tverdykh rastvorov)

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n-i. in-ta chernoy metallurgii, 1958, Vol 5, pp 462-484

ABSTRACT: Ref. RzhMet, 1958, Nr 5, abstract 10396

Card 1/1

126-5-3-12/31

AUTHORS: Golubkov, V.M., Il'ina, V.A., Kritskaya, V.K., Kurdyumov, G. V. and Perkas, M.D.

TITLE: Study of the Physical Factors which Determine the Hardening of Alloyed Iron (Izucheniye fizicheskikh faktorov, opredelyayushchikh uprochneniye legirovannogo zheleza)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 5, Nr 3, pp 465-483 (USSR)

ABSTRACT: This paper is devoted to the study of the physical factors which determine the hardening of α-iron alloyed with various elements; considering only hardening which is due fully to changes in the fine structure of the α-solid solution without any changes in its chemical composition. In the experiments iron was used alloyed with various elements; the chemical compositions of the respective binary alloys of iron are entered in Table 1, p.465. The material was produced in a high frequency furnace with ingot weights of 25 kg. All the ingots were subjected to diffusion annealing at 1200°C for twenty hours. After homogenization annealing, the ingots were forged to a square 50 x 50 mm. After forging most of the ingots were annealed for the purpose of obtaining a uniform grain size. After forging and annealing, the

Card 1/9

126-5-3-12/31

Study of the Physical Factors which Determine the Hardening of Alloyed Iron

blanks were cold rolled with a total reduction of 80% and from the produced strips flat specimens were cut which were used for measuring the hardness and also for micro-mechanical investigations. The alloys Fe + 3% Mn, Fe + 4% Ni, Fe + 8% Cr were also hardened by quenching in a 10% NaOH solution after the specimens have been heated in a salt bath to 1000°C. The alloys Fe + 3% Mn, Fe + 0.5% Ti, Fe + 0.6% W and non-alloyed iron were also used for studying the influence of step-wise deformation on the changes in the characteristics of the fine structure. Specimens with initial dimensions of 70 x 15 x 8 mm were deformed in the cold state (on a laboratory rolling stand) with reductions of 5, 10, 15, 20, 30, 50, 80 and 90%. The characteristic of the fine structure was also studied on filings obtained from the alloys Fe + 1.84% Co, Fe + 1.8% Mo, Fe + 2.28% V, Fe + 3% Mn, Fe + 4% Ni, Fe + 8% Cr. Distortions of the third type and the characteristic temperature were determined predominantly on specimens produced from powders. The fundamental methods of studying the influence of alloying elements on

Card 2/9

126-5-3-12/31

Study of the Physical Factors which Determine the Hardening of Alloyed Iron

the hardening of the ferrite were: X-ray structural analysis and mechanical tests. The authors investigated the relation between the fine crystalline structure of α-iron base solid solutions in the work hardened state and also some of the mechanical properties of these alloys. Hardening of the alloys was achieved by cold plastic deformation as a result of the martensitic γ to α transformation mechanism. For changing the properties of the crystals of α-iron in the micro and sub-micro ranges (properties of the crystal lattice of the α-solid solution), the iron was alloyed by various elements, namely: Si, Ti, V, Cr, Mn, Co, Ni, Nb, Mo, W. By means of X-ray structural methods the following properties of α-phase crystals were studied in the sub-micro regions: static lattice distortions caused by the presence of foreign atoms in the lattice; dynamic displacements of the atoms during thermal oscillations and the characteristic temperature; magnitude of the elastic deformation of the lattice caused by cold plastic deformation. As characteristics of the fine crystalline structure of the alloys in the hardened state the following were applied: size of the regions of the

Card 3/9

126-5-3-12/31

Study of the Physical Factors which Determine the Hardening of Alloyed Iron

coherent scattering of X-rays (mosaic block), distortions of the second type and of the third type. The mechanical properties of the micro-volumes were characterised by the hardness, the yield point and the strength values. The results led to the following conclusions:

1. A characteristic feature of alloys in the hardened state obtained by a high reduction in the cold state or as a result of the γ to α martensitic transformation is the low value of the regions of coherent scattering of X-rays. The size of these regions for all these alloys is within the limits of 200 to 400 Å. The observed difference in the size of the blocks is near to the limit of the error in measuring them. However, the strength characteristics change within wide limits on changing over from one alloy to another (hardness H_V between 172 and 340; σ_s between 54 and 113 kg/mm^2). Thus, the great difference in the resistance to deformation of various alloys in the hardened state cannot be attributed to changes in the sizes of the blocks.

Card 4/9

2. The presence of various elements in the solid solution

126-5-3-12/31

Study of the Physical Factors which Determine the Hardening of Alloyed Iron

influences to a considerable extent the type II distortions (non-uniform micro-stresses) in deformed as well as in hardened alloys. A correspondence exists between the magnitude of these type II distortions and the strength values of alloys in the hardened state.

3. High degrees of plastic deformation bring about considerable type III distortions. In the investigated solid solutions considerable displacements of the atoms take place in alloys in the annealed state, which is caused by the presence in the atom lattice of dissolved elements; $\sqrt{\bar{u}^2_{cm}}$ varied between 0.058 and 0.120 Å ($\bar{u}^2_{cm}$ being the magnitude of the static displacements of the atoms). After deformation with a high degree of reduction in the cold state (filings) the magnitude of $\sqrt{\bar{u}^2_{cm}}$ increased approximately to the same level (about 0.100 to 0.120), which is near to the level of type III distortions in cold deformed non-alloyed iron. The higher the value of $\sqrt{\bar{u}^2_{cm}}$ for the "equilibrium" solid solution, the smaller was the change

Card 5/9

126-5-3-12/31

Study of the Physical Factors which Determine the Hardening of Alloyed Iron

in this magnitude as a result of the deformation.

4. After hardening of the alloyed iron to martensite, the magnitude of the static displacements did not increase. Thus, in alloys hardened by means of martensitic transformation no type III distortions occur, although the strength characteristics approach those of materials deformed in the cold state. This could be seen particularly clearly on specimens of pure iron, hardened to produce martensite. No type III distortions were detected and hardening, block sizes and type II distortions were on the same level as in the case of iron deformed in the cold state. Consequently, presence of type III distortions at least of a magnitude detected in measurements by means of intensive X-rays is not a necessary condition for obtaining a high resistance to deformation.

5. Investigation of the fine crystalline structure as a function of the degree of plastic deformation carried out on pure iron and on some solid solutions has shown that with increasing degree of deformation the hardness, the type II and type III distortions increase, whilst the sizes of the

Card 6/9

126-5-3-12/31

Study of the Physical Factors which Determine the Hardening of Alloyed Iron

blocks decrease. These characteristics change most rapidly for low degrees of deformation; for deformations of 30 to 70% the change of these characteristics is slow. For higher degrees of deformation the speed of the change in the characteristics increases again. The behaviour of the metal in the case of very high degrees of plastic deformation requires further detailed investigation.

6. The obtained results permit the conclusion that breaking up of the regions of coherent scattering is a necessary condition for increasing the resistance to deformation of the metals (in the case of the "sliding" mechanism of plastic deformation). The differences in the absolute magnitudes of the characteristics of the resistance to deformation for various metals and solid solutions is due mainly to the differing properties of the crystals in the micro and sub-micro regions (character and force of the bond, static distortions and other deviations from the regular periodicity of the lattice) and not by changes in the size of these regions. The established correspondence between the resistance to

Card 7/9

126-5-3-12/31

Study of the Physical Factors which Determine the Hardening of Alloyed Iron

deformation and the magnitude of type II distortions should not be taken as an indication of the major role of these distortions from the point of view of hardening. It can be assumed that the magnitude of these distortions (non-uniform elastic deformations of the micro-regions) is itself due to the properties of the crystallites of the given material. From this point of view the magnitude of type II distortions serves as an evaluation of the limit of elastic deformation of the micro-regions and can be considered as being a definite characteristic of the properties of the crystallites of a given substance. It is also possible that the observed type II distortions influence the resistance to deformation causing an increase in the degree of deorientation of the blocks. The experimental data obtained in the here described work on the relation between the fine structure and the strength of a material permit establishing certain relations governing these phenomena and leads to a number of new problems, the elucidation of which by further experiments is important from the point of view of

Card 8/9

126-5-3-12/31

Study of the Physical Factors which Determine the Hardening of Alloyed Iron

understanding the nature of strength and hardening (work hardening) of metals and alloys.
There are 6 figures, 6 tables and 38 references, 29 of which are Soviet, 9 English.

ASSOCIATION: Institut metallovedeniya i fiziki metallov (TsNIIChM) (Institute of Metallography and Metal Physics TsNIIChM)

SUBMITTED: December 4, 1956

1. Iron alloys--Hardening 2. Iron alloys--Physical properties
3. Iron alloys--X-ray analysis 4. Iron alloys--Crystal structure

Card 9/9

24(2), 21(7) SOV/126-7-2-12/39

AUTHORS: Batenin, I. V., Il'ina, V.A., Kritskaya, V.K. and Sharov, B.V.

TITLE: On the Effect of Neutron Irradiation on the Fine Crystalline Structure of Metals and Alloys (K voprosu o vliyanii neytronnogo oblucheniya na tonkuyu kristallicheskuyu strukturu metallov i splavov)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2, pp 243-246 (USSR)

ABSTRACT: The metals investigated were Fe, Cr, Ni and Cu and the solid solutions were Fe-Ni, Fe-Cr, Fe-Mn, and Fe-W. Specimens were made up of each of these materials, their size being 20 x 10 x 2 mm. As a preliminary step before the irradiation all the specimens were annealed at the following temperatures: Ni and Cu at 400°C (30 minutes), Fe and the alloys Fe-Ni and Fe-Mn at 600°C (2 hours), Fe-Cr and Fe-W at 650°C (2 hours) and Cr at 900°C (2 hours). The specimens thus treated were placed in hermetically sealed aluminium containers and were then irradiated by neutrons. The temperature of the specimens during irradiation did not exceed 80°C. The neutron flux was 10^{20} neutrons/cm^2. The structure of the irradiated

Card 1/2

SOV/126-7-2-12/39

On the Effect of Neutron Irradiation on the Fine Crystalline Structure of Metals and Alloys

metals and alloys was studied by X-ray analysis. It was found that in the majority of specimens the interference lines become broadened after neutron irradiation. Table 2 gives the line widths of the interference lines before and after irradiation. Figs 1 and 2 show the corresponding lines before and after irradiation. These figures refer to copper (Figs 1 and 2) and Fe-Ni respectively. There are 2 tables, 3 figures and 19 references, 5 of which are Soviet, 14 English.

ASSOCIATIONS: ITEF AN SSSR and Institut metallovedeniya i fiziki metallov TsNIIChM (Institute of Metallography and the Physics of Metals TsNIIChM)

SUBMITTED: September 6, 1957

Card 2/2

82882

24.6810

S/120/60/000/02/013/052
E032/E314

AUTHORS: Vasichev, B.N., Il'ina, V.A., Latyshev, V.K. and Pliskin, Yu.S.

TITLE: A Scintillation Counter for the Recording of X-rays

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, Nr 2, pp 51 - 56 (USSR)

ABSTRACT: The recording of soft radiation by scintillation counters, e.g. in X-ray diffraction work, is complicated by the fact that the working pulses are comparable in magnitude with the noise pulses. In the present work, this difficulty is removed by using the coincidence circuit shown in Figure 1a, which is based on two crystal diodes. The points B_1 and B_2 are the inputs connected to the anodes of two photomultipliers and the output of the circuit is at A. The resistor R_3 is much smaller than R_1 and R_2. The diode circuits and the resistance R_3 are such that the potential at the point A is determined by the smaller of the potentials at B_1 and B_2.

Card1/4

82882
S/120/60/000/02/013/052
E032/E314

A Scintillation Counter for the Recording of X-rays

Figure 1 shows the output voltage as a function of currents flowing through the resistors $R_1 = R_2 = 12\ k\Omega$. As can be seen from these curves, a reduction in the current I_1 by a factor of 2 leads to a reduction in the output voltage by about 10% (the working point is displaced from M to N). The simultaneous reduction in the currents through R_1 and R_2 by a factor of 2 leads to a reduction in the output voltage also by a factor of 2 (the working point is displaced from M to P). Thus the appearance of a pulse in only one of the photomultipliers leads to a small anticoincidence pulse at the output, while the appearance of simultaneous pulses at the two anodes leads to a large output pulse equal in amplitude to the smaller of the two input pulses. In order to ensure low resolving time, R_1, R_2 and R_3 must be shunted by parasitic capacitances as small as possible. The diodes $Д_1$ and $Д_2$ are attached to the point A by short pieces of cable, having a natural

Card2/4

82882

S/120/60/000/02/013/052
E032/E314

A Scintillation Counter for the Recording of X-rays

capacitance of 27 pF/m. R_3 forms the input resistor of a cathode follower which decouples this resistor from the capacitance of the connecting cable. The resolving time of this system, determined with the aid of a delay line, was found to be 10^{-7} sec. Figure 2 shows the integral noise spectrum for the two photomultipliers taken separately (Curves a and б) and the spectrum obtained with the coincidence circuit (Curve B). Figure 3 shows the block diagram of the instrument. The pulses from the coincidence circuit are fed into an amplifier in series with a discriminator, and the output of the discriminator is recorded either by a scaling unit or by a ratemeter working in conjunction with a pen recorder. The basic circuit of the instrument as a whole is shown in Figure 4. Figure 5 shows the high-voltage rectifier employed. Figure 6 shows the amplifier and the single-channel kicksorter. Figure 7 indicates the method of mounting of the sodium iodide crystals between the photomultipliers. Typical spectra obtained are shown in Figures 8-10. The efficiency of the counter

Card 3/4

82882

S/120/60/000/02/013/052
E032/E314

A Scintillation Counter for the Recording of X-rays

was found to be of the order of 90% in a wide wavelength region (between the chromium and molybdenum radiations). The system can thus be used successfully at all wavelengths normally employed in X-ray analysis.
There are 10 figures, 1 table and 16 references, 8 of which are Soviet and 8 English.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific-Research Institute for Ferrous Metallurgy)

SUBMITTED: March 9, 1959

Card 4/4

84684

21.6200 1138, 1403, 2308 only

S/020/60/134/004/008/023
B019/B067

AUTHORS: Batenin, I. V., Il'ina, V. A., Kritskaya, V. K., Kurdyumov, G. V., Academician, and Sharov, B. V.

TITLE: Effect of Neutron Irradiation on the Crystalline Fine Structure and the Properties of Metals and Alloys

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4, pp. 802 - 805

TEXT: The authors studied the broadening of X-ray interference lines of iron, iron alloys, and copper by neutron irradiation (10^{20} - 10^{21} n/cm^2). Prior to the experiments the samples were annealed at 600 - 650°C. Fig. 1 shows the changes of the (220)- and (400) interference lines of iron and copper due to neutron irradiation, Fig. 2 shows two X-ray photographs of copper (before and after irradiation). In Table 1 the changes in the widths of the interference lines are summarized:

Card 1/3

Effect of Neutron Irradiation on the Crystalline Fine Structure and the Properties of Metals and Alloys

S/020/60/134/004/008/023
B019/B067

Table 1

Material	Indices of the reflecting surfaces	Line widths		Distortions of II kind $\Delta a/a \cdot 10^3$	Block dimensions $D \cdot 10^6$ cm
		before irrad.	after irrad.		
Fe	(110)	5.0	5.6	0.65	8
	(220)	7.3	9.4		
Cu	(200)	5.9	7.0		
	(400)	11.0	15.6	1	5

In Table 2 the changes in microhardness are given. The values are between 26 and 66%, according to material and irradiation intensity. Since the changes in the interference lines are the same as in cold-forming, the authors conclude that neutron irradiation leads to a reduction of the regions of coherent scattering and to microtensions, as is the case in cold-forming. The solidification of the material is connected with the change in the crystal properties in the microregions. Here, the resistance to dislocations in the lattice is increased. The authors conclude there-

Card 2/3

84684

Effect of Neutron Irradiation on the Crystalline Fine Structure and the Properties of Metals and Alloys

S/020/60/134/004/008/023
B019/B067

from that the increase in microhardness is summed by irradiation and cold-forming. This exactly applies for iron, as is shown by the diagrams in Fig. 2. For the anomalous behavior of an iron tungsten alloy (6% W) it is assumed that irradiation not only causes defects of the type "external atomic vacancies" as is usually the case but also a change in the distribution of the tungsten atoms in the direction of the thermodynamically more stable state. There are 3 figures, 2 tables, and 6 Soviet references.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences USSR). Institut metallovedeniya i fiziki metallov Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii im. I. P. Bardina (Institute of Metallography and Metal Physics of the Central Scientific Research Institute of Nonferrous Metallurgy imeni I. P. Bardin)

SUBMITTED: June 29, 1960

Card 3/3

BAGARYATSKIY, Yuriy Aleksandrovich; GOLOVCHINER, Yakov Mendelevich; IL'INA, Vera Alekseyevna; KAMINSKIY, Emmanuil Zel'manovich; KARDONSKIY, Viktor Mikhaylovich; KRITSKAYA, Vladislava Kasimirovna; LYSAK, Leonid Ivanovich; OSIP'YAN, Yuriy Andreyevich; PERKAS, Mark Davydovich; ROZENBERG, Vladimir Moiseyevich; SANDLER, Naum Isaakovich; TRAVINA, Nadezhda Trofimovna; UTKEVSKIY, Lev Markovich; BERLIN, Ye.N., red.izd-va; VAYNSHTEYN, Ye.B., tekhn.red.

[Radiography in metallography] Rentgenografiia v fizicheskom metallovedenii. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 368 p. (MIRA 14:7)
(Metallography) (X-rays—Industrial applications)

S/717/62/000/007/002/010
D207/D301

AUTHORS: Il'ina, V.A., Kritskaya, V.K., Candidate of Physico-Mathematical Sciences, Kurdyumov, G.V., Member of the Academy of Sciences, USSR, and Osip'yan, Yu.A.

TITLE: On the nature of changes of Young's modulus and the characteristic temperature due to heat treatment of nickel-based solid solutions

SOURCE: Dnepropetrovsk. Institut metallovedeniya i fiziki metallov. Problemy metallovedeniya i fiziki metallov, no. 7, Moscow, 1962, 34 - 63

TEXT: Mechanical and other properties of nickel and its alloys were investigated as a function of their heat treatment and in relation to their microstructure. Apart from nickel, the following nickel alloys were studied: 1) With 2.9 % Al, 2), 5.7 % Al, 3) 11.5 % Cu, 4) 10.2 % Co, 5) 9.8 % Co, 6) 10.3 % Fe, 7) 14.5 % Mo, 8) 5.6 % Mo, 9) 20 % Cr. All these alloys contained also small amounts of C, Si, Mn, P and S. They were prepared in a high-frequency furnace, subjec-

Card 1/3

ted to homogenizing annealing (24 hours at 1200°C), forged, rolled and drawn into wires of 1 and 0.7 mm diameter. The following properties were studied: Young's modulus and its temperature dependence, shear modulus, internal friction, electrical resistance, Debye-Waller temperature factor, Debye characteristic temperature, and microstructure. Increases of Young's modulus, the Debye-Waller temperature factor and the Debye temperature were observed on heating, following deformation and quenching of the Ni-Cr (nichrome) alloy and on heating, following deformation of the Ni-Al and Ni-Cu alloys. The increases were due to redistribution of the component atoms leading to formation of the K-state. Young's modulus, its temperature dependence, shear modulus and internal friction of the ferromagnetic Ni-Al, Ni-Cu Ni-Co and Ni-Mo solid solutions were all affected by the rate of cooling from 300 - 400°C. Slip lines were observed after quenching of these ferro-magnetic alloys. The changes in the elastic constants and internal friction were due to defects formed on quenching which affected magnetostrictive and elastic properties of the ferromagnetic alloys. There are 26 figures, 2 tables and 30 references: 22 Soviet-bloc and 8 non-Soviet-bloc. The references to the English-lan-

On the nature of changes of Young's ... S/717/62/000/007/002/010
D207/D301

guage publications read as follows: A. Taylor, and K. Hinton, J.Inst. Metals, 81, 4, 169, 1952-3; F. Nordheim and N. Grant, J.Inst.Metals, 82, 9, 440, 1953-4; S. Siegel and S. Quimby, Phys.Rev., 49, 663, 1936

Card 3/3

S/126/62/013/001/013/018
E091/E580

18.6700

AUTHORS: Il'ina, V.A., Kritskaya, V.K. and Kurdyumov, G.V.

TITLE: Study of the intensity of X-ray diffraction lines of cold worked metals

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.1, 1962, 132-136

TEXT: In previous papers the authors reported on changes of the integrated intensity of diffraction lines obtained with Mo-Kα radiation on α-iron. It was found by both photographic and ionization methods that plastic deformation of iron caused a decrease in intensity, the effect being the greater the higher the order of reflection. In the present study, the use of a scintillation counter and monochromatic irradiation enabled a more accurate study of changes in the intensity and the shape of lines. Powders of α-iron and other metals, both cold worked and annealed, were investigated. X-ray diffraction patterns of the same materials were also photographed, and the relative intensities of a number of lines were determined. The results obtained varied: using the photographic method, a weakening of the integrated intensity was observed after deformation, whereas the scintillation

Card 1/2

counter did not show any difference between annealed and cold worked α-iron. A comparison of diffraction lines obtained by the photographic method and by using a scintillation counter showed that they differ mainly in their ratio between line intensity and background intensity. In the second case, this ratio is considerably greater; this permits the measurement of the intensity of diffuse lines with a greater accuracy. Hence, a fairly reliable measurement of the intensity of reflections of higher orders becomes possible. There are 3 figures.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM (Institute of Science of Metals and Physics of Metals TsNIIChM)

SUBMITTED: September 1, 1961

L 9234-66 EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(h)/EWA(c) GG/WD/GS
ACC NR: AT5023793 SOURCE CODE: UR/0000/62/000/000/0160/0167

AUTHOR: Batenin, I. V.; Il'ina, V. A.; Kritskaya, V. K.; Kurdyumov, G. V.; Sharov, B. V.

ORG: none

TITLE: Investigation of the effect of neutron on the fine crystalline structure and properties of metals and alloys

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniy na materialy. Moscow, 1960. Deystviye yadernykh izlucheniy na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 160-167

TOPIC TAGS: copper, iron, chromium, iron alloy, nickel containing alloy, chromium containing alloy, tungsten containing alloy, metal structure, alloy structure, neutron irradiation, irradiation effect

ABSTRACT: Copper, iron, and chromium annealed at 400, 600, and 900C, respectively, and Fe-Ni, Fe-Cr, and Fe-W alloys annealed at 600, 600, and 650C, respectively, were irradiated with an integrated neutron flux of about 10^{20} and 10^{21} n/cm^2 at 80C. Irradiation caused a noticeable widening of interference x-ray lines in copper and iron resulting from fragmentation of coherent portions of the crystalline lattice (block) (5×10^{-6} and 8×10^{-6} cm in copper and iron, respectively) and from the presence of elastic microdeformations (1×10^{-3} and 0.65×10^{-3} in copper and

Card 1/2

ACC NR: AT5023793

iron, respectively). In the Fe-Ni alloy the widening of interference lines was much smaller, and none was observed in chromium and in the Fe-Cr and Fe-W alloys. Irradiation increased the microhardness of all the investigated metals and alloys; the increase varied for different metals and grew larger as flux density increased from 10^{20} to 10^{21} n/cm^2. The microhardness of the irradiated Fe-W alloy practically did not increase with a cold deformation of up to 60—70 deg, while that of the unirradiated alloy increased significantly with deformation, regardless of its magnitude. In the irradiated and unirradiated Fe-Ni alloy the changes in microhardness with cold plastic deformation were practically identical. The initial difference ($\Delta H \approx 45$ units) in the microhardness of the irradiated and unirradiated Fe-Ni alloy practically disappeared with a 30—40-deg cold deformation, after which the changes in microhardness followed a conventional course. A similar pattern was observed for irradiated and unirradiated chromium, except that the initial difference (ΔH) was 30 units and it decreased to zero after a 70—80 deg deformation. Investigation of the dependence of the microhardness on the annealing temperature showed that the nature of the crystal lattice defects created by plastic deformation differed substantially from the nature of the defects created by neutron irradiation. The former were much more stable; hence, weakening of irradiated metals began at appreciably lower annealing temperatures. Orig art. has: 15 figures. [MS]

SUB CODE: 11, 20/ SUBM DATE: 18Aug62/ ORIG:REF: 001

Card 2/2

KHAMSKIY, Ye.V.; IL'INA, V.A.

Polarographic control of nitroglycerin in diluted solutions containing nitric and sulfuric acids. Zav.lab. 29 no.7:799-802 '63. (MIRA 16:8)

1. Novomoskovskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti i produktov organicheskogo sinteza.

(Nitroglycerin) (Polarography)